

## **METHOD AND APPARATUS FOR DETERMINING DEPTH OF INTERACTIONS IN A DETECTOR FOR THREE-DIMENSIONAL COMPLETE BODY SCREENING**

### **ABSTRACT OF THE DISCLOSURE**

5           The present invention is directed to a system and method for efficiently and cost effectively determining an accurate depth of interaction for a crystal that may be used for correcting parallax error and repositioning LORs for more clear and accurate imaging. The present invention is directed to a detector assembly having a thin sensor (*e.g.*, APD) deployed in front of the detector (the side where the radioactive source is located and the

10   photon is arriving to hit the detector) and a second sensor (APD or photomultiplier) on the opposite side of the detector. The light captured by the two interior and exterior sensors which is proportional to the energy of the incident photon and to the distance where the photon was absorbed by the detector with respect to the location of the two sensors, is converted into an electrical signal and interpolated for finding the distance

15   from the two sensors which is proportional to the location where the photon hit the detector.